RTOC Drinking Water and Wastewater Roundtable Background Paper - 3/16/18

In an effort to provide additional information and gain more awareness on systems operations and compliance, EPA and Tribal Leaders will discuss various types of issues facing Indian country, and obstacles and solutions to recurring drinking water and wastewater non-compliance.

I. Recurring Drinking Water Violations at Tribal Public Water Systems

1. Monitoring Violations

- Based on recent data, approximately 30% of tribal public water systems are not in compliance and over half of the violations are due to not taking the required samples within the required timeframe.

- Importance of monitoring drinking water:

    - Monitoring helps utilities maintain safe and reliable drinking water.
    - With monitoring, problems are identified early and can be resolved in a timely manner. Without monitoring, problems may go undetected, which could cause illness in the community.
    - Customers rely on their drinking water system to provide safe water. Monitoring helps ensure consumer confidence and trust.

2. Failure to Correct Significant Deficiencies

- The second most common violation is a **failure to correct significant deficiencies** found at drinking water systems during a sanitary survey.

- Significant deficiencies are problems with water system components that can enable animals and contaminants to enter (e.g., lack of screens on openings to storage tanks, inadequate seals on wells). Routine maintenance of water system components can prevent many significant deficiencies.

- Importance of correcting significant deficiencies:
    - Correcting significant deficiencies prevents contamination from entering drinking water system that could cause illness.
    - Customers rely on their drinking water system to provide safe water. Correcting significant deficiencies in a timely manner helps maintain consumer confidence and trust.

Discussion questions:

1. What are your concerns about the drinking water systems owned and/or operated by your Tribe?
2. Are drinking water issues regularly in front of Tribal Leadership?

a. If no, is it because there are no issues, or there is a different communication structure?
b. If yes, are there improvements that EPA can make when providing information to the Tribe or Tribal Leadership regarding those issues?

3. What do you view as the biggest challenge in operation and maintenance of your tribal drinking water facilities?
4. Are there changes that we could make in the compliance process that would result in fewer violations and more water systems in long-term compliance?
5. Are there other stakeholders that EPA needs to engage regarding drinking water systems on your reservation?

II. Recurring Wastewater Violations at Tribal Facilities

1. Equipment, Wastewater Treatment, and Collection Systems Operation and Maintenance Violations

a. Sanitary sewer overflows (SSOs)

Public health concerns: Raw sewage overflows can expose the public to bacteria and disease and impact downstream drinking water, recreation, and aquatic environments. EPA has observed instances of children playing in raw sewage overflows and sewer backups flooding raw sewage into homes. Additionally, unsuspecting community members may be swimming or fishing downstream of where SSOs enter a creek.

i. **Lift station overflows**: When a sewage pump fails from lack of maintenance, raw sewage may overflow from a lift station. Often, the severity of these overflows is exacerbated by inadequate alarm systems or the lack of a backup pumps.
ii. **Pipe breaks**: If there is no system in place to ensure the regular inspection of sewer systems and replacement of aging infrastructure, lines can break and cause raw sewage to backup into homes or overflow from manholes.
iii. **Pipe blockages**: Inspections of sewer systems are also important to identify and remove debris before a total blockage causes sewage to backup into homes or overflow from manholes. To avoid ongoing maintenance burdens, the sources of blockages also need to be addressed, which could include grease from homes or restaurants or solid debris being flushed down toilets and drains.

b. Lagoon maintenance

Public health concerns: Failure to properly inspect and maintain wastewater lagoons can lead to berm blowouts, which result in uncontrolled discharges of inadequately treated wastewater. This can expose the public to bacteria and disease and impact downstream drinking water, recreation, and aquatic

environments. If not properly maintained, lagoon cell liners can also start leaking, which can cause inadequately treated wastewater to seep through the bottom of a lagoon, potentially impacting groundwater and adjacent waterways.

i. **Vegetation control (mowing and tree removal)**: Berms around lagoons cannot be safely and effectively inspected for seeps or other structural damage if they are overgrown with vegetation, including grass, shrubs, and trees. Trees can impact the integrity of lagoon liners and berms, which can lead to the berm blowouts and seeps of inadequately treated wastewater.
ii. **Animal burrows**: Animal burrows need to be identified and controlled, as they can also impact the integrity of lagoon berms and lead to berm blowouts or short-circuiting of treatment processes. It is noted that animal burrows cannot be identified if the vegetation on lagoon berms is not controlled.

c. Treatment systems not fully operational

Public health concerns: If portions of a wastewater facility's treatment system are not operating, the system will discharge only partially treated wastewater. This can expose the public to bacteria and disease and impact downstream drinking water, recreation, and aquatic environments.

i. **Disinfection systems**: Disinfection of wastewater is usually achieved through the use of ultraviolet or chlorine disinfection systems, which are designed to kill *E. coli* and other harmful bacteria prior to discharge. If the system is not operating due to lack of maintenance, bacteria levels in the discharge will be elevated.
ii. **Aerators**: These are mechanical blowers that agitate the wastewater and help remove organics, solids, and other pollutants by supplying good bacteria in the lagoon with oxygen to help remove these pollutants. If they are not operating, the levels of solids, organic material, and other pollutants in the discharge will be elevated.

d. Treatment systems and collection systems are outdated and not fully functioning

Public health concerns: When treatment systems and collection system infrastructure, including pipes and lift stations fail, any of the above issues can occur.

2. **Required Day-to-Day Task Performance Violations**

    a. **Conduct effluent sampling**

    Public health concerns: Sampling and analysis is the only way to determine if the effluent being discharged is at a level that is safe for the public, including downstream drinking water intakes and swimming and fishing in receiving waterways

        i. **Pollutants of concern:** Samples typically measure the level of organic pollutants, solids, and e. coli or other bacteria.

    b. **Submit discharge monitoring reports (DMRs) to EPA**

    Public health concerns: DMRs summarize the sample data required to be collected by the permit. If the sample data is not submitted through the DMRs submitted to EPA, we cannot know when pollutants are a level that are unsafe.

    c. **Conduct inspections of facilities**

    Public health concerns: Inspections help operators identify if there are issues with lift station pumps, the integrity of lagoon berms, if a treatment system needs maintenance, or if the other issues have arisen or could arise at the wastewater treatment facility. Failure to conduct inspections of facilities has resulted in much larger issues that could have been prevented, such as sanitary sewer overflows, berm blowouts, or treatment systems going down.

3. **Applying for or renewing NPDES permits**

    Public health concerns: Permits are the backbone of the NPDES program, and the EPA cannot adequately protect receiving waters without permits. Without a valid permit, there is also no structured sampling or DMR reporting, which is important for both Tribes and EPA to know if a discharge is safe for the public, including downstream drinking water intakes and swimming and fishing in receiving waterways.

4. **Understanding and abiding by permit requirements**

    Public health concerns: Permits are designed to ensure the effluent discharged is safe, and treatment and collection systems are properly operated and maintained. If operators do not understand and abide by permit requirements, they cannot properly operate their systems and ensure discharges are safe for the public, including downstream drinking water intakes and swimming and fishing in receiving waterways.

5. **Lack of money and resources**

   Public health concerns: Lack of resources is often identified as the reason why utilities are not able to maintain and replace equipment, conduct inspections, perform monitoring, etc. Without reliable and adequate funding, operators cannot ensure the collection system and treatment systems are properly operated and maintained, and aging systems cannot be replaced without a long-term plan to pay for replacement. Additionally, samples cannot be collected and analyzed without adequate personnel and funding for laboratory analysis. All of these issues could lead to unsafe discharges, including SSOs in collection systems or inadequately treated effluent leaving treatment facilities.

Questions:

1. Are waste water issues regularly in front of Tribal Leadership?
   - If no, is it because there are no issues, or there is a different communication structure?
   - If yes, are there improvements that EPA can assist with in regard to providing information to the Tribe or Tribal Leadership?
2. Do you have a management plan for your wastewater systems, including:
   - Installation of infrastructure,
   - Operation/maintenance,
   - Personnel, and
   - Funding?
3. What successes or challenges do you face in the management of your wastewater systems? These may include:
   - Staff training,
   - Acquiring and retaining qualified staff,
   - Ensuring staff understands and meets Clean Water Act obligations (sampling, reporting, applying for permits, etc.),
   - Ensuring tribal leadership understands and meets Clean Water Act obligations (sampling, reporting, applying for permits, etc.),
   - Paying for infrastructure,
   - Paying for regular operation and maintenance, and
   - Funding sources (user fees, other tribal funds, grants for infrastructure, free or low-cost resources, etc.).
4. What solutions do you see to these challenges?
5. Is there a role for EPA in any solution(s), and if so, what?
6. Are there actions tribal leadership have taken or can take to address these concerns and challenges?
7. Do you reach out to other Tribes to find solutions or provide advice?
8. Are there other issues or information about your drinking water and waste water systems that you would like to share with EPA?